Polski Kongres Drogowy

ITA-FIDIC Emerald Book on underground works,

Time: 1430 - 1500

Prof. Arnold Dix (Eng)

President of the International Tunnelling and Underground Space Association

Arnold@arnolddix.com

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ITA AITES

CO$T

TIME

FUNCTION

QALITY


INTERNATIONAL MONETARY FUND


OUR DREAM
IS A WORLD FREE OF POVERTY

We can't find new land with an old map

- Its time for 21st century contracts

Contracts

- An agreed set of rules about how parties (the organizations involved) agree on an goal and also how to make payments, alter the goals and deal with disputes.
- Always based upon assumptions
- For underground works “ground condition” assumptions are often huge

Wrong to use NORMAL construction contracts

- Underground infrastructure is deceptively similar to normal civil works or mining
- Conventional facilities are not subject to the extreme geotechnical, hydrogeological, structural, geochemical, geothermal extremes
- Places for human habitation and use may superficially look like a building from the inside but demand specialised tenability and evacuation safety – fire engineering e.g. wrong to simply apply a countries building code for fire and life safety
- Wrong to apply normal concrete standards (e.g. fibre reinforcement)
- Wrong to simply apply building code
- Wrong to apply normal occupational health and safety standards e.g. hyperbaric, air quality, emergency shelters
- Ground conditions impact behaviour of support structures

Complex Interdependences

- Evacuation modelling needs to take into account unique tenability behaviour deep underground
- Thermal flux from walls different to buildings (more like an oven)
- Electrical cables anti smoke, often hydroscopic but underground spaces often damp
- Mining standards typically create spaces for short duration mineral access but infrastructure tunnels and spaces require stability over hundreds of years
- Underground works never truly know ground behaviour and conditions until excavation – so a contract relying on certainty will generate variation claims

Poor Professional Advice

International trend towards to unfair risk allocation in contracts – especially ground conditions risk

Naively think the market will absorb ground condition risk

Unfair contracts often seem as a victory by clients' lawyers

Contrary to hundreds of years of legal principles of fairness and equity

Often leads to stressed projects

ITA Global Research

- ITA's global research revealed common themes in project success including:
  - Informed risk allocation
  - The use of experienced tunnelling experts
  - A strong project culture

A Global Template?

ITA approached several international contract writers

FIDIC agreed to collaborate with ITA to formulate a D&C contract with fair risk allocation of ground risk

NEC4 are currently collaborating with ITA for another

FIDIC / ITA Emerald Book

40 country contributors over 5 years

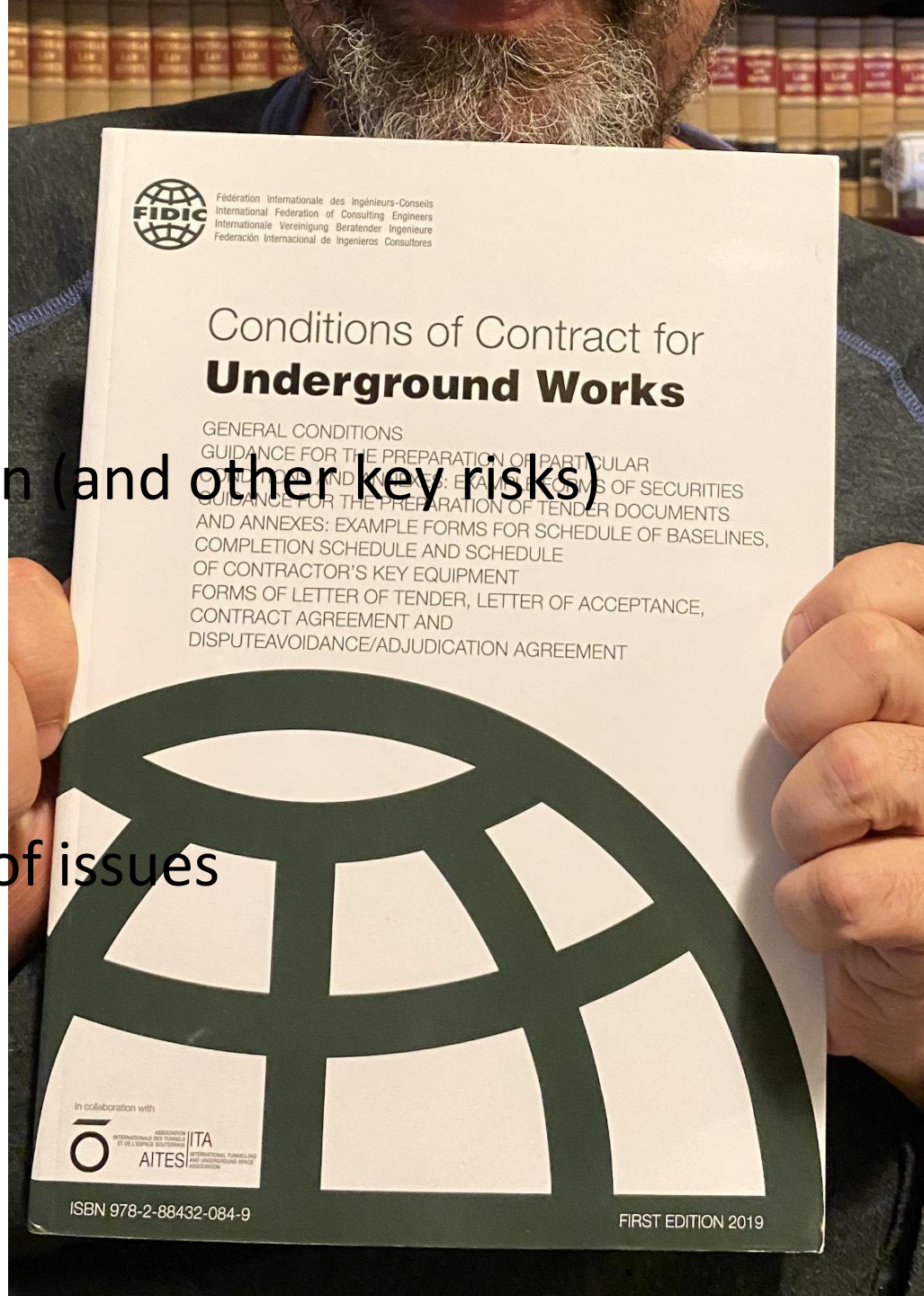
Released in May 2019

Bespoken global underground works contract

Now used by World Bank (Hydro Projects)

Revolutionary Publication

- Comparatively simple ground risk Allocation (and other key risks)
- Focus on deliverables and timelines
- Focus on technical (non - legal) resolution of issues

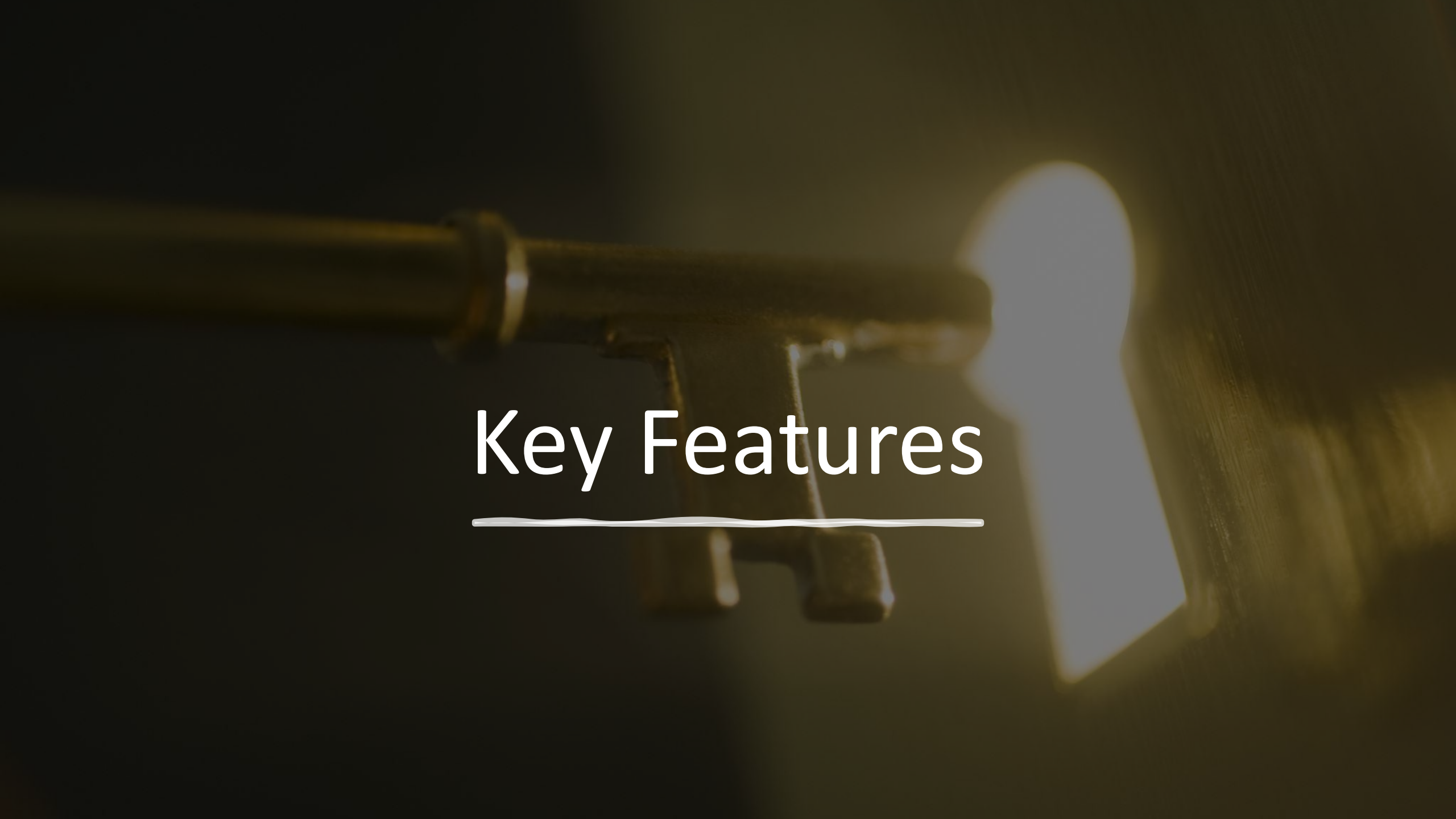


Standard Form Underground Works Contracts

- As the proponent, an architect & peer reviewer of the FIDIC – ITA *Emerald Book*

  - There is now an example of a *standard form Undergrounds Works Contract* for international application
  - It is not 10,000 pages long
  - Costs less than one hours lawyer$ fee$

- FIDIC, ICE, NEC, AFTES and ITA etc all point to the importance of fair risk allocation and a focus upon engineering as keys to delivering efficient and effective underground works



Key Features

Priority of Documents

- Contract data
- Completion schedule
- Schedule of baselines
- Geotechnical baseline report
- Employers requirements
- General conditions

Trigger for Intervention – Employers Engineer

COMPLETION SCHEDULE

SCHEDULE OF BASELINES

Contractor is expected to do jobs they tendered in accordance with the agreed schedule

Contract is not directed at lawyers except for administration in accordance with law – especially with the engineer

The Engineer

Key role under contract – similar to old fashioned idea of the Project Engineer

DAB – Dispute Avoidance Board

Engineers decisions can be referred to the DAB

The Employers Requirements (Aspirational)

- Intended purposes of works
- Specify contractors key personnel
- Specify special equipment
- Project scope
- Preliminary design (employers reference design)

Geotechnical Baseline Report

- Describes the subsurface physical conditions that serve as the basis for the execution of the excavation and lining works
- Drives design and construction methods
- Drives reaction of the ground to such methods
- Sets the allocation of risk between the parties for the described subsurface physical conditions

GBR

Often closely describes the basis for execution of the excavation and lining works

Is not a warranty about conditions – it is just a factual position against which time and money can be adjusted

Geotechnical data report

If GBR conditions are encountered, contractor must meet its schedule and technical deliverables

If ground conditions are not as expected, time and renumeration can be adjusted

GBR

Time for Completion

Completion schedule has a very high priority

Milestones are anticipated as part of contractors proposal

Extensions

- Change in employers requirements
- Exceptionally adverse climatic conditions (e.g. outside GBR)
- Unforeseeable shortages in personnel or goods caused by epidemic or government (Pre Covid -19)
- Delay impediment or prevention caused by employer

Acceleration

- Engineer may drive revised program if milestones not being met or project behind program at contractors expense

GBR

GBR is paramount

Outside influences from adjacent sites, climate etc contractor deemed as far as ‘practicable’ to investigate

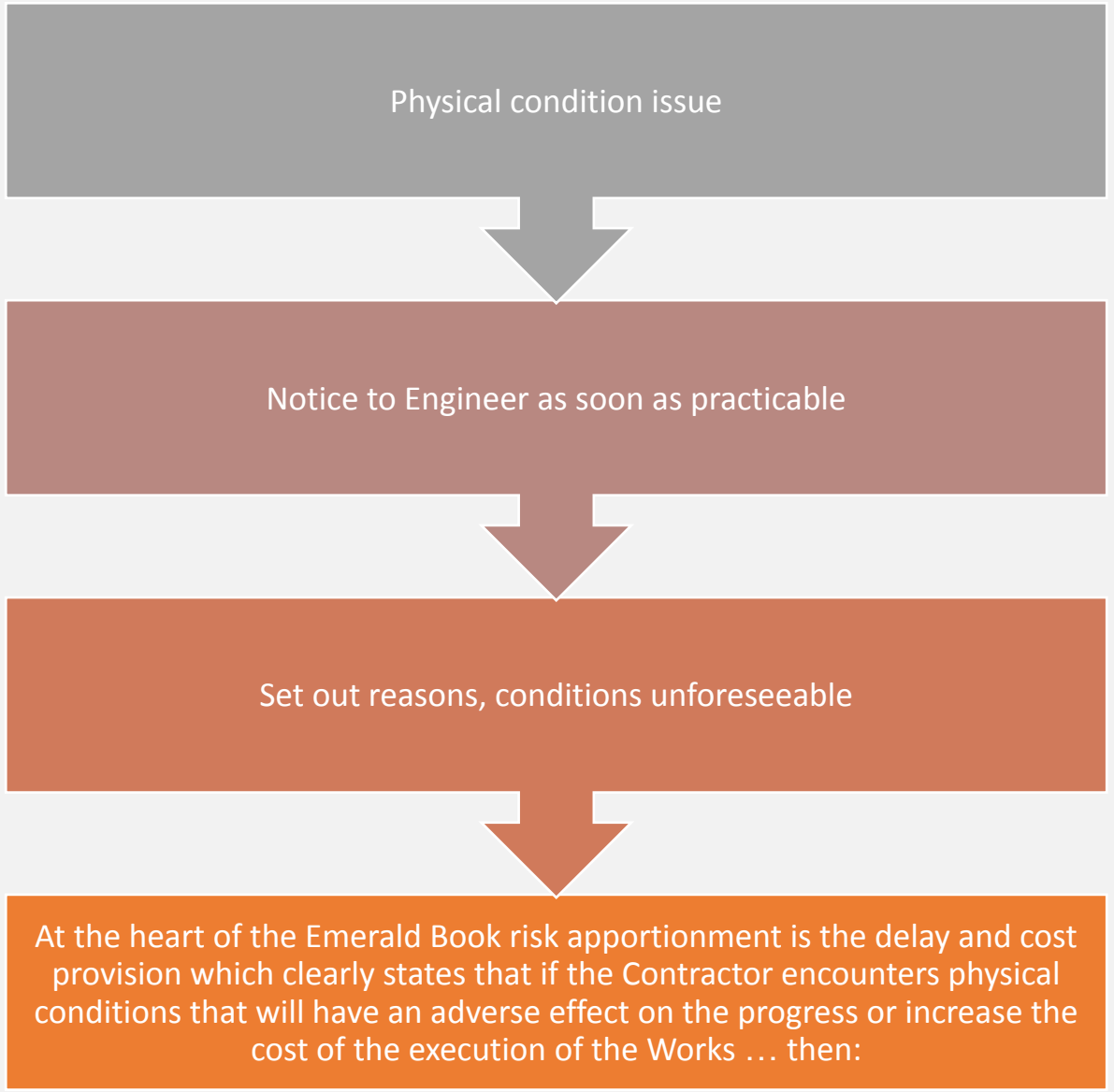
Price

Accepted contract amount for works

Contractor obliged to do all things necessary for proper execution of works for that price

Only actual additional costs incurred are recoverable if physical conditions encountered outside GBR

Notice


Physical condition issue
Notice to Engineer as soon as practicable
Set out reasons, conditions unforeseeable
At the heart of the Emerald Book risk apportionment is the delay and cost provision which clearly states that if the Contractor encounters physical conditions that will have an adverse effect on the progress or increase the cost of the execution of the Works … then:

- *‘If and to the extent that the Contractor suffers delay and/or incurs Cost due to these physical conditions [those having an adverse effect on progress and/or increased the cost of the execution of the Works] … the Contractor shall be entitled … [to] payment of such Cost.’*

Time Related Charges

- The Time for Completion can be shortened or extended and the financial consequences of such changes will depend upon the reason for the change.
- In all cases the variation in Contract price is adjusted by having regard to measurements, appropriate rates and prices for items in the Bill of Quantities.

Payment for Excavation and Lining Works

- Normally only the excavation and lining works are subject to measurement and the accepted Contract amount is deemed to cover all other underground works and all things necessary for the proper execution and completion of the Contract.
- Only to the extent that the Contractor suffers actual delay, and/or incurs costs as a result of subsurface physical conditions actually encountered that are outside the limits described in the GBR those costs and delay are also dealt with under the Contracts unforeseeable physical conditions provisions.
- Practically this means that once such physical conditions are encountered the Contractor must give notice to the Engineer, and a timely investigation be conducted and if factually proven an award for payment to the Contractor made.

Process of Awards Payment

- Either party can claim under the Emerald Book.
- There are strict timelines for making claims.
- claiming party must make their claim to the Engineer as soon as practicable, but in any case, not later than 28 days after becoming aware (or should have been aware) of the event or circumstances causing the claim.
- If they fail to make the claim within time they are deemed to be not entitled to any additional payment..
- There is also a mechanism with strict time limits for providing the full details of the Claim. In the case of excavation and lining Works it must be to the rates and prices in the Bill of Quantities. Contemporary records are an essential component in substantiating a Claim and have special weight in determining the Claim.

Conclusions

- Underground Infrastructure is typically of a GDP impacting economic scale
- Lump sum fixed fee full risk transfer is most common type of contract (and most commonly ends in tears)
- The New Emerald Book marks a critical step change in global recognition of the importance of ground conditions when apportioning risk in subsurface construction projects.
- The collaborative multinational effort of FIDIC/ITA provides a transparent example of how ground risks can be more fairly and responsibly managed.
- The Emerald Book provides a framework in which Contractors are rewarded for effort and punished for incompetence and Employers gain the benefit of transparent risk sharing including reduced cost.


THE ITA CONTRACTUAL FRAMEWORK CHECKLIST FOR SUBSURFACE CONSTRUCTION CONTRACTS (2nd EDITION / 2020)
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